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side by side

DB=DWPI; PLUR=YES; OP=ADJ

L4 L3 and adhesi\$5
L3 L1 and (reactive or functional)
L2 L1 and ((reactive or functional) with group)
L1 (plasma with treat\$4) and polyethylene

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S' 9763

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L4: Entry 6 of 13

File: DWPI

Jun 16, 1993

DERWENT-ACC-NO: 1993-189782

DERWENT-WEEK: 199650

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TITLE: Treating polymer surface with plasma - using process to obtain high strength bond to surface coating by applying optimum gas pressure and treating time derived from test curves

INVENTOR: JOST, S

PRIORITY-DATA: 1991CH-0003837 (December 23, 1991)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 546367 A1	June 16, 1993	G	012	B29C059/14
ES 2091388 T3	November 1, 1996		000	B29C059/14
JP 05239242 A	September 17, 1993		007	C08J007/00
US 5348632 A	September 20, 1994		010	B05D003/06
EP 546367 B1	June 12, 1996	G	013	B29C059/14
DE 59206558 G	July 18, 1996		000	B29C059/14

INT-CL (IPC): B05D 3/04; B05D 3/06; B29C 59/14; B29K 23/00; B32B 31/12; C08J 7/00

ABSTRACTED-PUB-NO: EP 546367A

BASIC-ABSTRACT:

A surface is treated with plasma in an atmosphere of a reactive gas. The surface is at least primarily that of an organic synthetic polymer and it is treated for the purpose of (at least) promoting its adhesion to a coating. The duration of treatment is at least of the order of that for max. adhesion in a bond-treatment time curve, and the gas pressure used is at least of the order of the corresponding max. point in a bond-gas pressure curve. Pref. polymers are polypropylene and polyethylene or mixts. based on them.

ADVANTAGE - The method is partic. suitable for treating a surface of at least 1 m length. It produces good bonds to coatings, both in absolute terms and relative to the treatment times, gas pressures used and/or quantities of gas and energy employed.

ABSTRACTED-PUB-NO:

EP 546367B EQUIVALENT-ABSTRACTS:

Process for plasma treatment of a workpiece surface in a reactive gas atmosphere, where the surface at least essentially consists of at least one synthetic organic polymer at least to increase the paint adhesion, characterised in that the gas pressure is selected at least in the vicinity of an adhesion maximum in a paint adhesion/gas pressure diagram.

US 5348632A

A method is claimed for plasma treating a workpiece surface in a reactive gas environment, the workpiece surface being of a synthetic organic polymer. The method comprises selecting at least one of duration of treatment and gas pressure; the duration or pressure being in a flat region of an adherence max. of a material to be

applied.

The surface of the workpiece is plasma treated following the period or gas pressure selected. Pref. the surface consists of polypropylene based plastics and the duration is 15-180 seconds or the pressure is 3.3×10^{-3} to 40×10^{-3} mbar.

USE - Used for adhering lacquer onto plastics, esp. wrt. large substrates.

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L4: Entry 8 of 13

File: DWPI

Apr 12, 1989

DERWENT-ACC-NO: 1989-108171

DERWENT-WEEK: 198915

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TITLE: Highly oriented ultra-high mol. wt. polyolefin article - provides composite with higher adhesive strength and non-impaired tensile strength after surface plasma treatment

INVENTOR: JACOBS, M J N; RUTTEN, H J J

PRIORITY-DATA: 1987DE-3733426 (October 2, 1987)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
EP 311197 A	April 12, 1989	E	004	
AU 8823369 A	April 6, 1989		000	
BR 8805048 A	May 9, 1989		000	
CN 1035308 A	September 6, 1989		000	
JP 02006657 A	January 10, 1990		000	
US 5183701 A	February 2, 1993		004	B32B033/00
ZA 8807381 A	June 28, 1989		000	

INT-CL (IPC): B29C 0/00; B32B 33/00; C08J 5/06; C08J 7/00; C08L 23/00; C09K 0/00; D01F 6/04; D06M 10/04; D06M 10/06

ABSTRACTED-PUB-NO: EP 311197A

BASIC-ABSTRACT:

Articles of highly oriented polyolefins having ultrahigh wt. av. mol.wt. exceeding 600000 g/mol. with good wetting and adhesive props. are claimed, esp. as filaments/fibres/yarns/ fabrics/films on conventional matrix materials. Also claimed is their mfr. by subjecting the surface to a plasma treatment. Articles consist of polyethylene, esp. linear polyethylenes with mol.wt. 600000-6000000 g/mol and contg. 1-10, esp. 2-6 Me/Et gps. per 1000C atoms. Opt. included can be 0-5 mol.% copolymerisable alkene(s) e.g. propylene/butylene/octene. Highly oriented filaments/fibres etc., stretched at ratio exceeding 30 and pref. with density 0.1-0.9 g/cm³, are opt. precleaned (e.g. by solvent treatment to remove adhering sizes) then subjected to plasma treatment in inert (e.g. N₂, helium) and/or reactive (e.g. oxygen, CO₂, NH₃) gases, pref. reactive. Plasma treatment is effected: (e.g. in equipment as EP-A 0006275) at 0.2-5 mmHg, esp. 1mm Hg; at energy density 5-100 kW/m³, esp. 15-50 kW/m³; at room temp.; and with residence time 5-200 secs., and is pref. immediately followed by chemical treatment to improve wetting/adhesion by providing ~~adonit~~ active surface gps. e.g. -COOH, -OH, -CO. Treating cpds. include unsatd. cpds. e.g. acrylic acid, acrylamides, maleic acid and glycidyl methacrylate, plus pref. polymsn. inhibitor e.g. Fe(III) cpd.

USE/ADVANTAGE - Plasma treatment improves wetting and adhesive props. without reducing tensile strength. Articles find use as reinforcing materials for composte mfr. e.g. sports items (tennis racquets, golf clubs), boats and high-pressure hoses.

ABSTRACTED-PUB-NO:

US 5183701A EQUIVALENT-ABSTRACTS:

Polyolefin article is based on highly oriented polyolefins of mol. wt. greater than 600000g/mol whose surface is subjected to plasma treatment carried out under a pressure of 0.2-5mm Hg and an energy density of 5-100 kW/m³ with a residence time of 5-200 sec. in the presence of reactive gases.

USE/ADVANTAGE - Polyolefin pref. linear polyethylene has good wetting and higher adhesive properties than untreated material for use in combination with matrix materials to mfr. composite. The plasma treatment does not modify the tensile strength of the article.